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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/830,028	04/23/2004	Rolf Dittmann	61277-0015	7500

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EXAMINER

WIEHE, NATHANIEL EDWARD

ART UNIT	PAPER NUMBER
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3745

DATE MAILED: 09/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

TAL

Office Action Summary

Application No.

10/830,028

Applicant(s)

DITTMANN ET AL.

Examiner

Nathan Wiehe

Art Unit

3745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 07142004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on 14 July 2004 is noted. The submission is in compliance with the provisions of 37 CFR 1.97 and 1.98. Accordingly, the information disclosure statement is being considered by the examiner. However, foreign patent DE 367 109 C is not being considered since an English translation was not provided.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 9, 11, 12, 14, 15, and 19 are rejected under 35 U.S.C. 102(b) as anticipated by Bangert (WO 00/11324). Bangert discloses a forced flow cooling means for use during the shutdown cooling period of a turbomachine (2). Bangert's cooling device induces a flow in an annular cavity (5), formed between inner casing (3) and

Art Unit: 3745

outer casing (4). It is noted that the applicant invokes 35 U.S.C. 112, 6th paragraph by stating "means for" in claim 1. Bangert's disclosed means includes a fan (12), an injection hole (9) and an extraction point (10). Bangert's injection hole (9) and extraction point (10) are arranged at circumferentially symmetrical positions within the cavity (5). The fan (12) of Bangert's invention induces a tangentially oriented flow (S) by forcing motive fluid (L) into cavity (5) through hole (9) and removing the motive fluid (L) from extraction point (10), thus essentially circulating a closed volume. Bangert's cooling means produces substantially the same results as the claimed invention. In regard to claims 14, 15, and 19, the method of operating a turbomachine would have been inherent from the cooling device of Bangert.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-4, 6, 8, 9, 11, 14-16, and 18-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bangert in view of Schulze. Bangert discloses the invention substantially as claimed except for the use of an ejector. Schulze discloses the use of ejectors in turbomachine cooling systems. Schulze's ejector (2) is used to induce the flow of air into pipe (10) and through to pipe (28) where it can be used for cooling of the

Art Unit: 3745

turbomachine. It would have been obvious at the time the invention was made to modify the cooling device of Bangert by replacing the inlet hole with an ejector, as taught by Schulze, in order to better control the induced flow direction. In regard to claims 2, 3, 20, and 21, the modified cooling device of Bangert discloses the invention substantially as claimed except for inducing the motive fluid at an inclination angle in the axial direction. It is common practice in the art of turbine cooling that a cooling fluid flow with at least a partial axial velocity component will bring the benefit of cooling a longer axial section of the turbine. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify the cooling device of Bangert by adding an inclination angle in the axial direction in order to mitigate the adverse thermal gradient within a longer axial section of the cavity as an engineering expedient. In regard to claims 14-16 and 18-21, the method of operating a turbomachine would have been apparent from the cooling device above.

7. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bangert in view of Schulze as applied to claim 4 above, and further in view of legal precedent. The court decision of, *In re Harza*, 274 F.2d 669, 104 USPQ 378 (CCPA 160), established the legal precedent that "mere duplication of parts has no patentable significance unless a new and unexpected result is produced." Since the specification is silent as to any additional benefit of multiple ejectors arranged as claimed, it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize two ejectors in the manner as claimed as an obvious duplication of parts in order to enhance the tangential flow of the motive fluid.

Art Unit: 3745

8. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bangert in view of Schulze as applied to claim 6 above, and further in view of BBC (DE 507 129). The modified cooling device of Bangert discloses the invention substantially as claimed except for the specific geodetic locations of the ejector and extraction point. BBC discloses a turbomachine cavity cooling device with supply point and an extraction point at opposing geodetic highest and lowest points (1,2). It would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify the modified cooling device of Bangert by arranging the ejector and extraction point at opposing geodetic highest and lowest points in order to align the cooling flow with the temperature gradient.

9. Claims 10, 13, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bangert in view of Schulze as applied to claims 9, 11, and 14 above, and further in view of Huber (5,782,076). The modified cooling device of Bangert discloses the invention substantially as claimed except its explicit use to cool the combustion chamber and the motive fluid communicating with the hot-gas path. Huber discloses a closed loop turbine cooling system. Huber teaches the use of cooling air (52) directed into a cavity (55) between the outer shell and the combustor wall (13) for cooling the combustor. Huber also discloses opening (26) for drawing off motive fluid in fluid communication with the hot-gas path (70). Huber further discloses discharging cooling fluid (73) into the hot-gas path through leakage openings in passageways (100). It would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify the modified cooling device of Bangert by arranging the

Art Unit: 3745

device within the combustor and allowing flow communication with the hot-gas path, as taught by Huber, in order to provide shutdown cooling to the combustor and to provide cooling through out the entire turbomachine. In regard to claim 17, the method operating a turbomachine as claimed would have been apparent from the modified cooling device above.

Prior Art

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The cited patent to Bangert is the issued US patent of publication US 2001/0022933 A1 cited by the applicant. The patent issued to Belzner discloses a turbomachine housing cooling system.

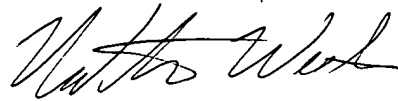
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nathan Wiehe whose telephone number is (571)272-8648. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Look can be reached on (571)272-4820. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 3745

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Nathan Wiehe
Examiner
Art Unit 3745



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9/1/05